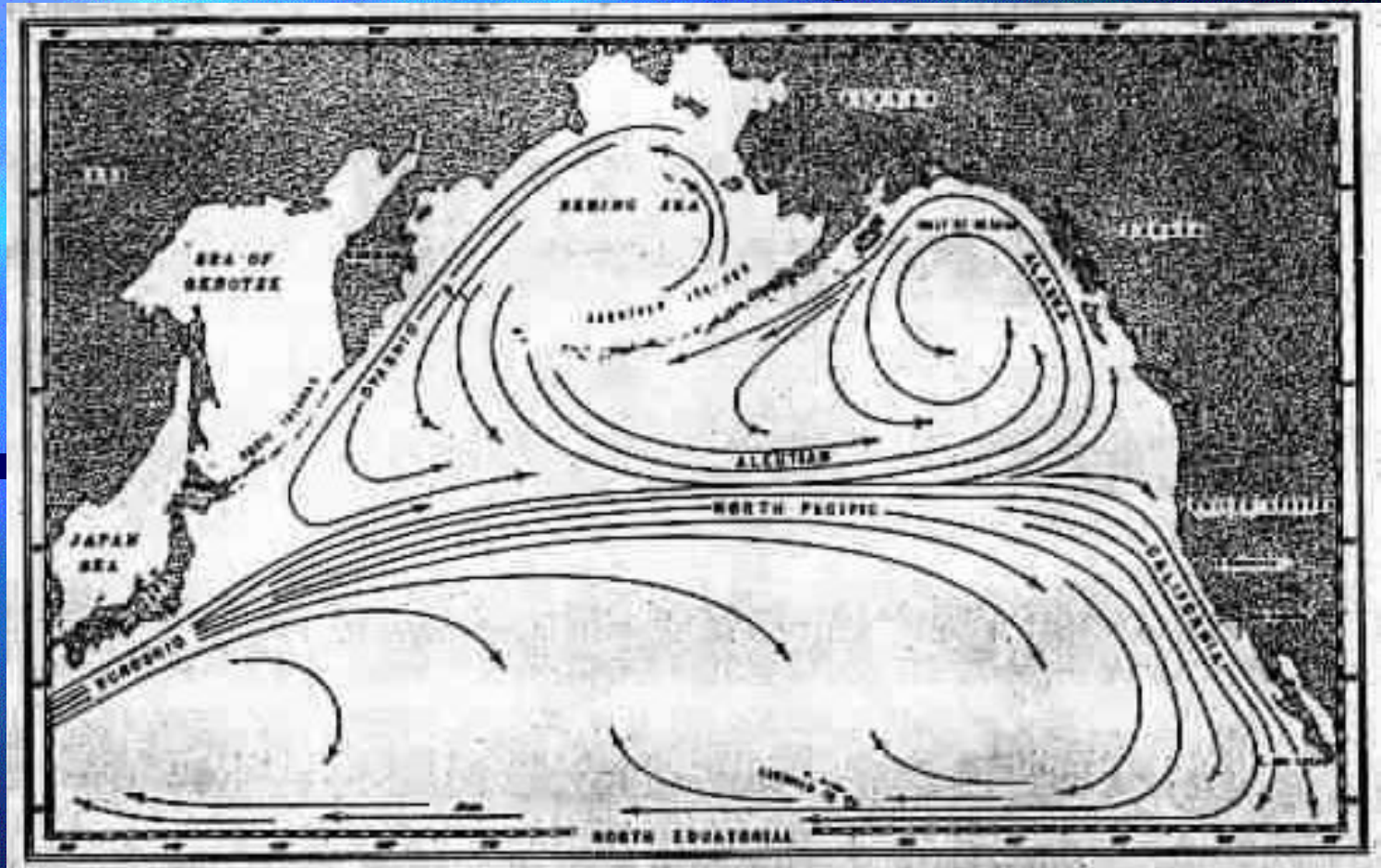


Algalita Marine Research Foundation



Mid Pacific Gyre Voyages, 1999 - 2002

Current Diagram



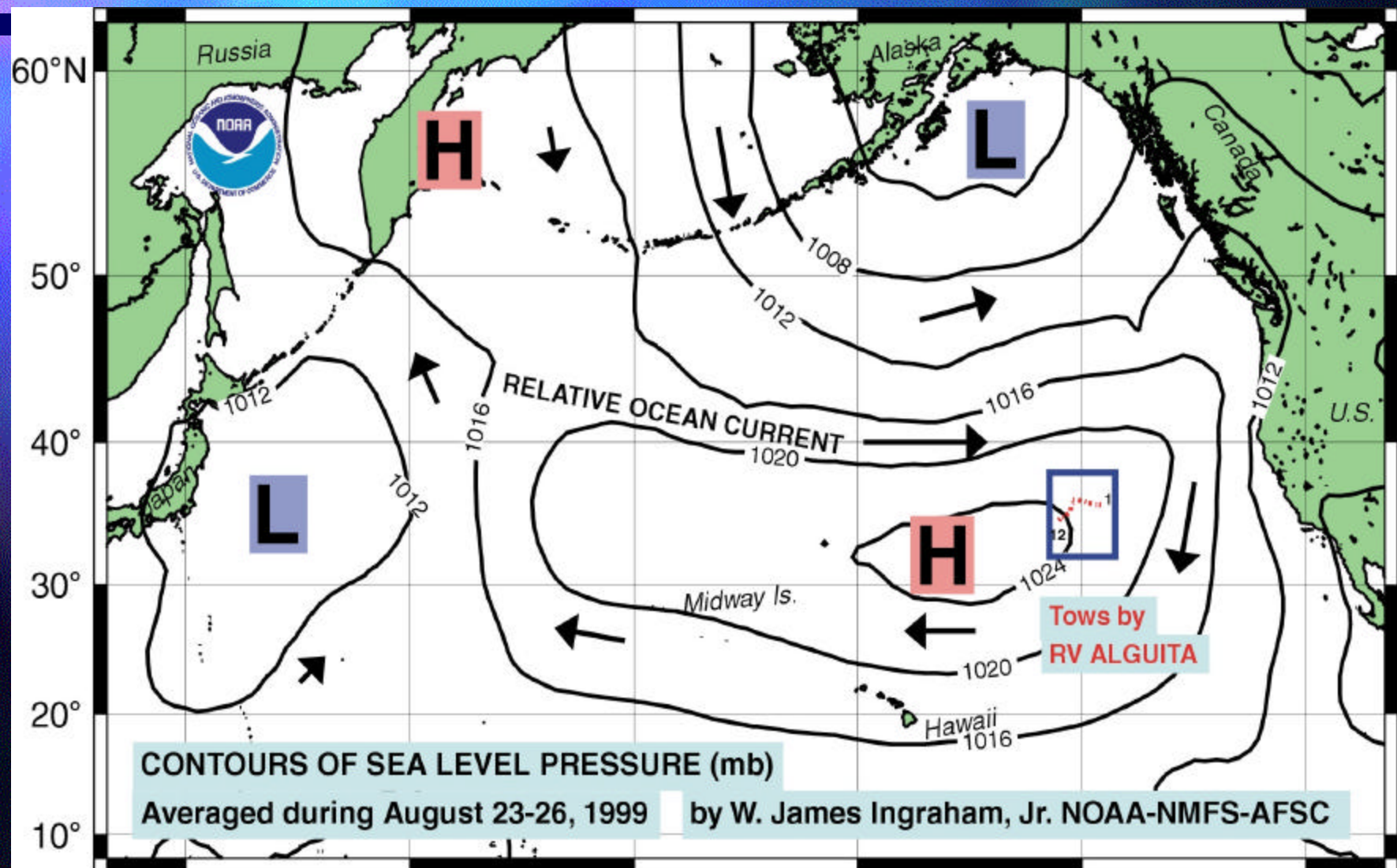
Showing Gyres in the North Pacific

Dr. Curtis Ebbesmeyer



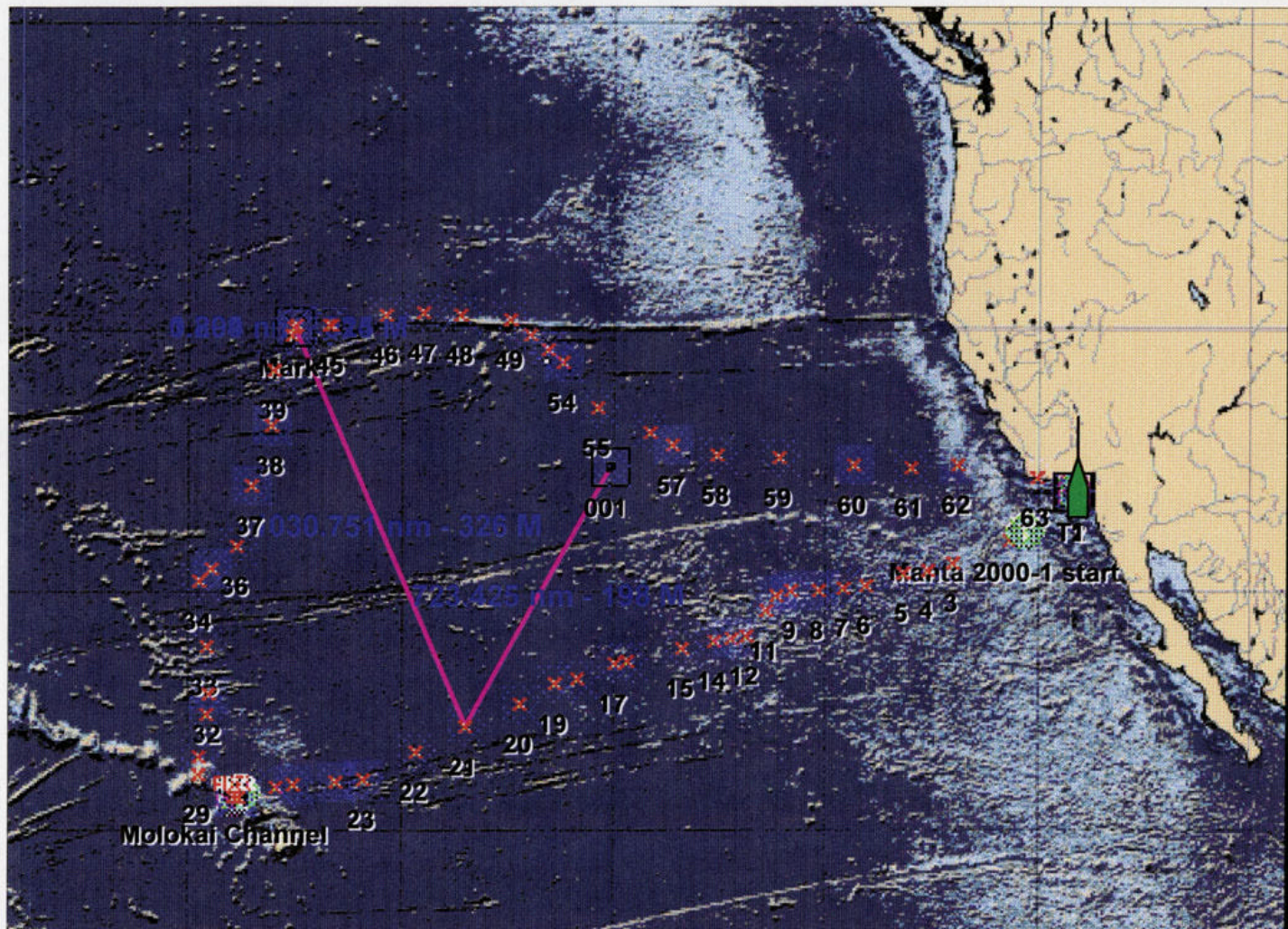
Map Showing Mid Pacific Gyre

1999 Survey map by Jim Ingraham

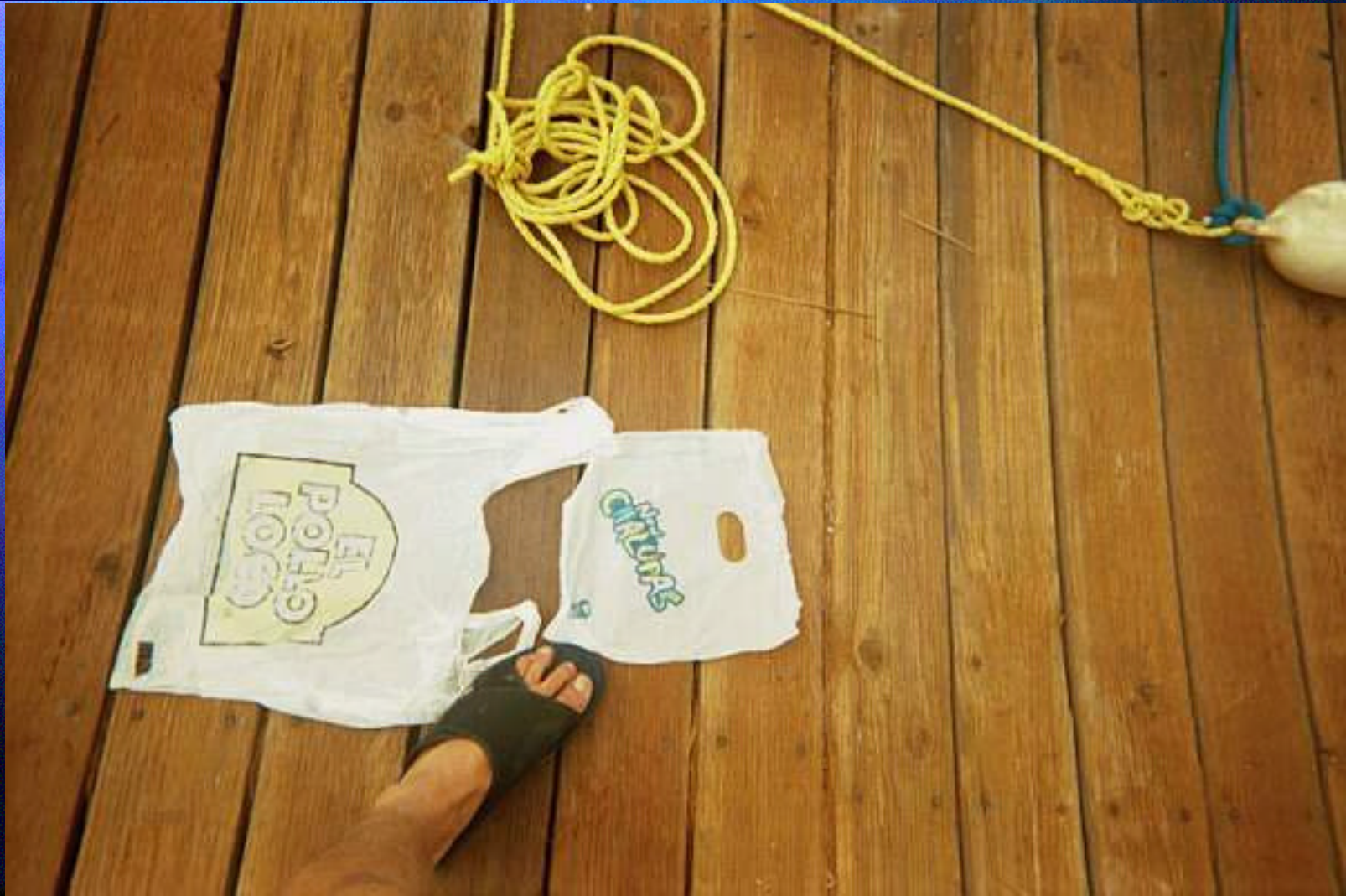


2000 Survey Area

1 : 130,449,408 - Initial Small Scale Chart : BSB REGION 1 - NORTH AMERICA SEAFLOOR TOPOGRAPHY



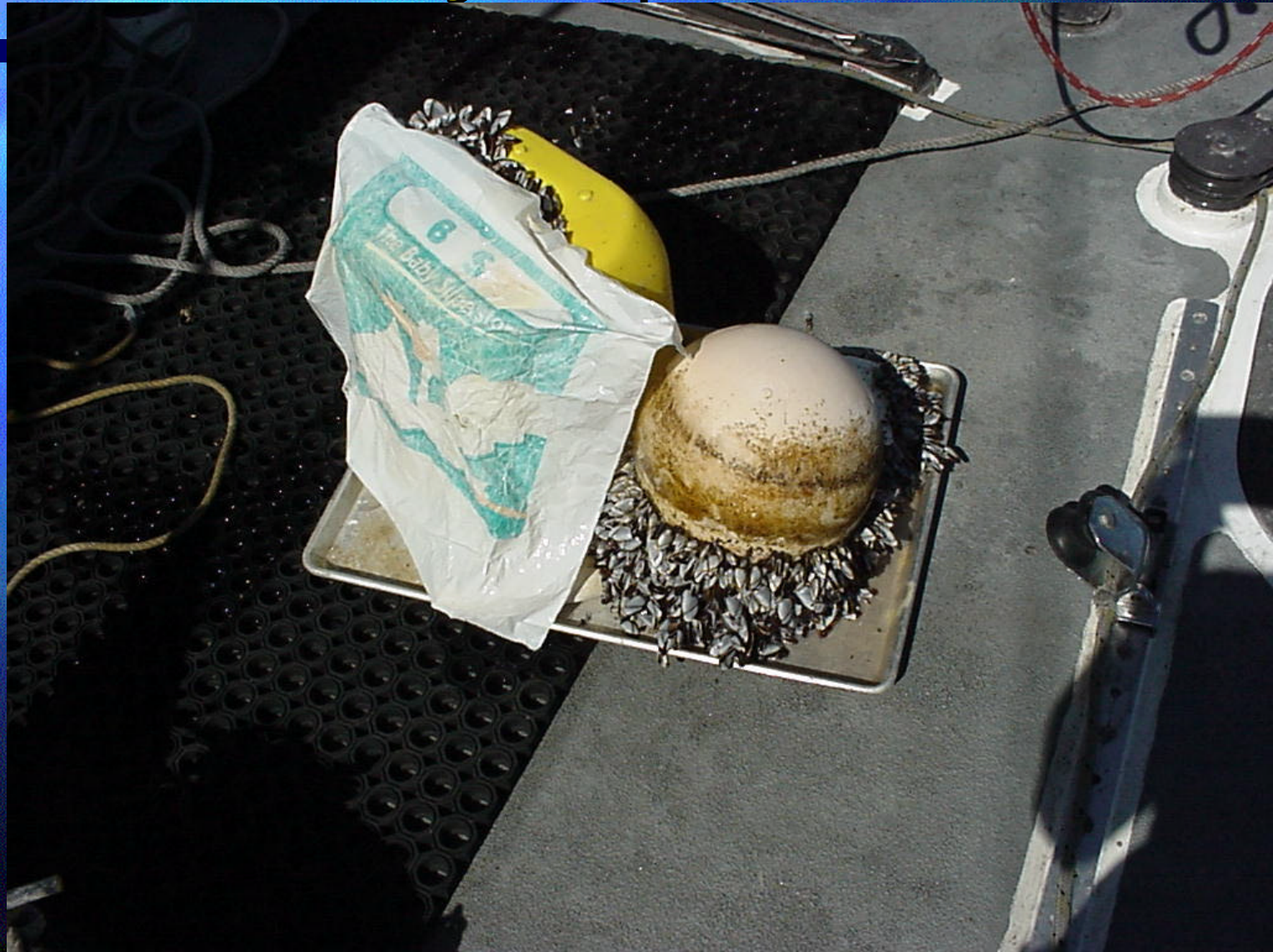
We discovered a container spill of these shopping bags



For over 10 miles we picked up one bag after another



That one was destined for the
Baby Superstore



Squid eyes and beaks



A regurgitated Laysan Albatross
bolus as nature intended

Midway Island Carcass



Guadalupe Island Albatross Chick



6/24 ISLA ZAPATO

#2 IZ



ALBATROSS BOLUS

Location: Guadalupe
Island

Station: Military
Colony #3

Sample Date: 6/25/03

SORTED SAMPLE



NON-PLASTIC



PLASTIC

4 Month old Laysan Albatross Bolus from Kure Atoll 2002



The natural environment of the remote Northwest Hawaiian Islands



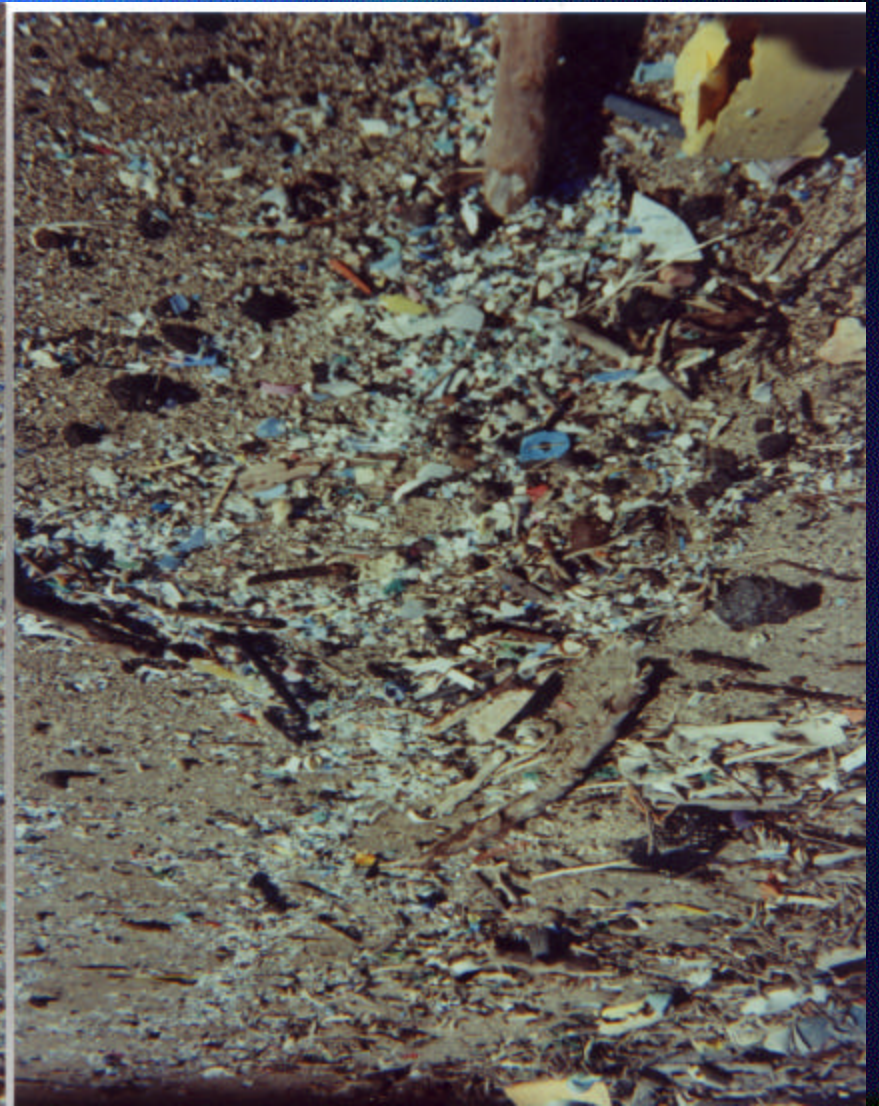
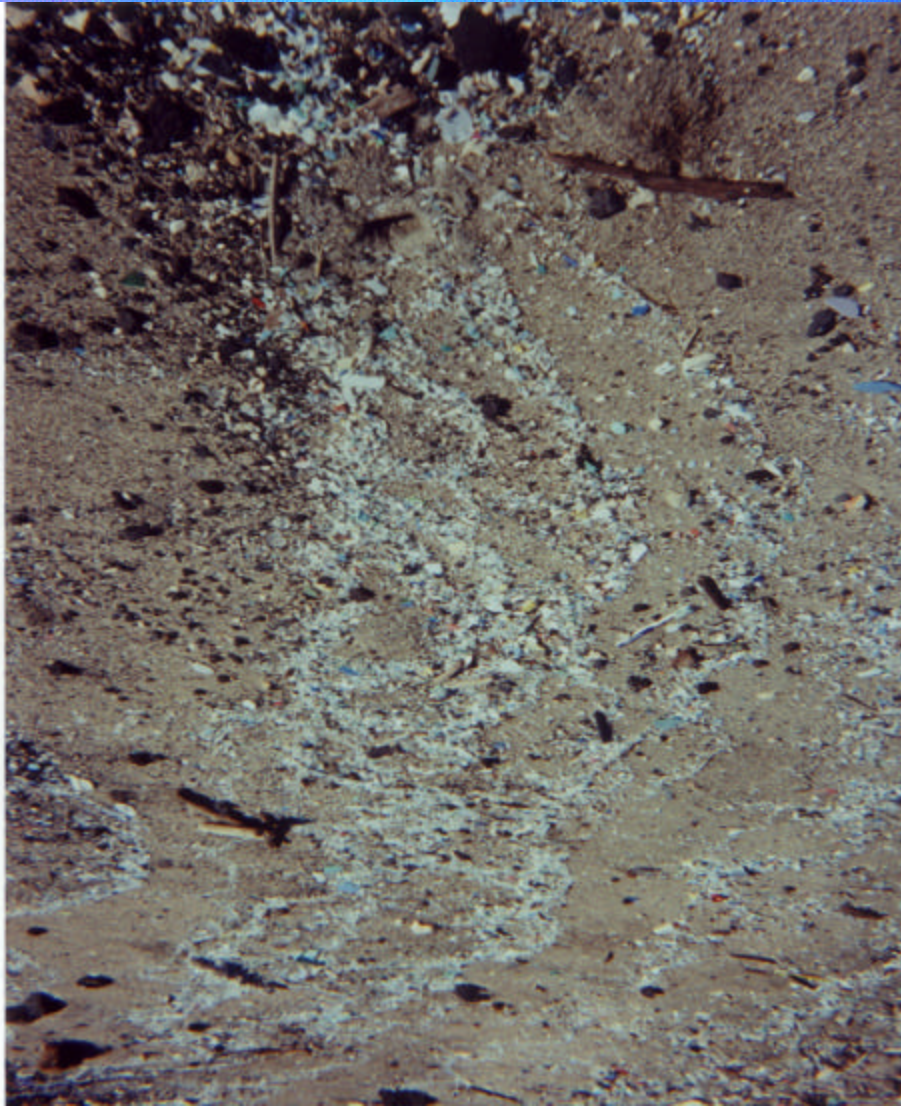


"Waimanalo Blues"

Where have all the reds gone?



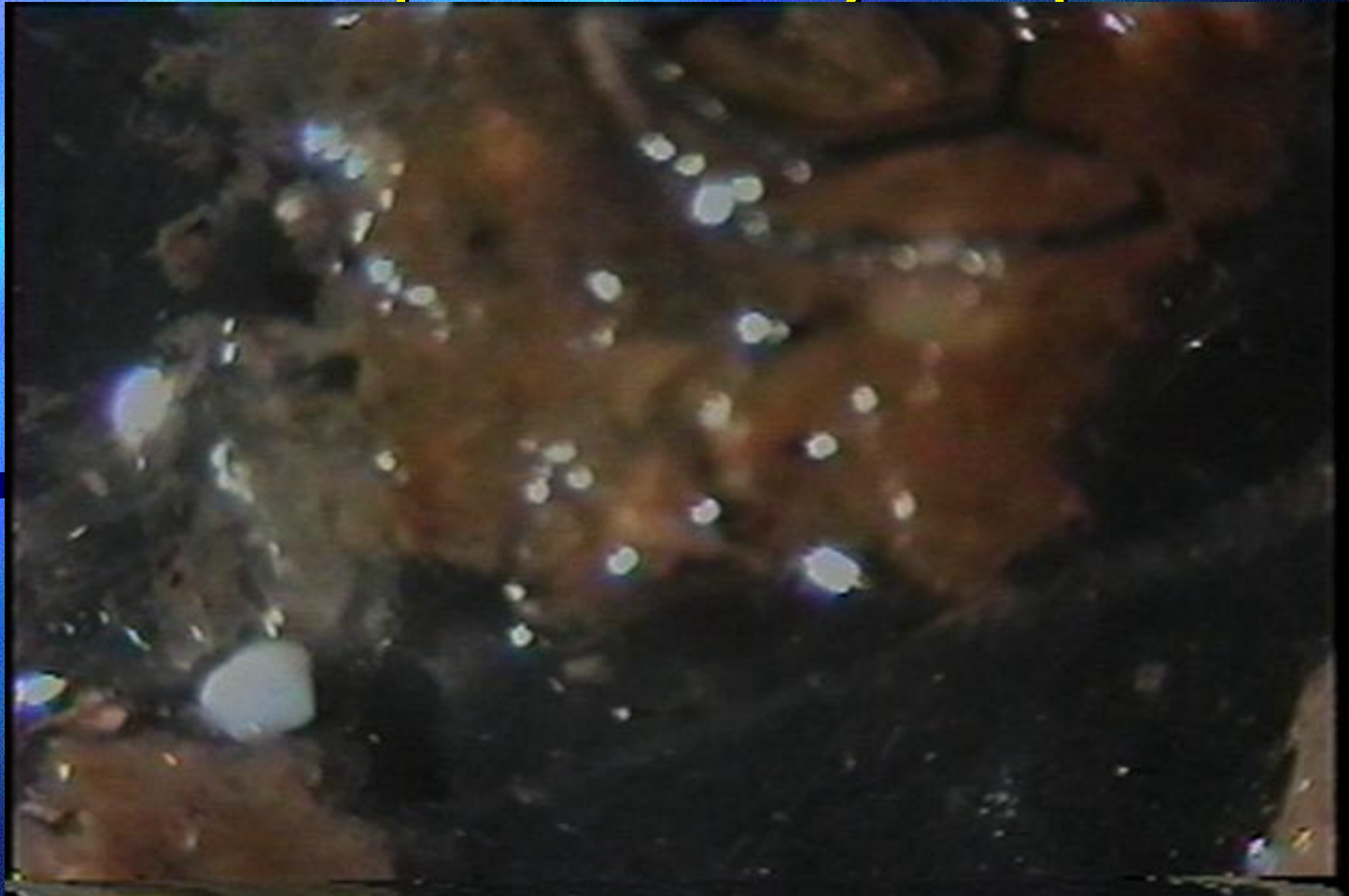
Hundreds of miles south at Pulehua on the Big Island



Our ocean samples look like this when they come aboard



Most Salps Heavily Impacted



Both Large and Small Salps had a variety of plastic within them

Poly line with nearby fragment



Embedded in Tissue of small Salp

Polypropylene Line Fragment



Pulled up from where buried in
salp tissue

Three Salps--Two appear to have ingested Styrofoam



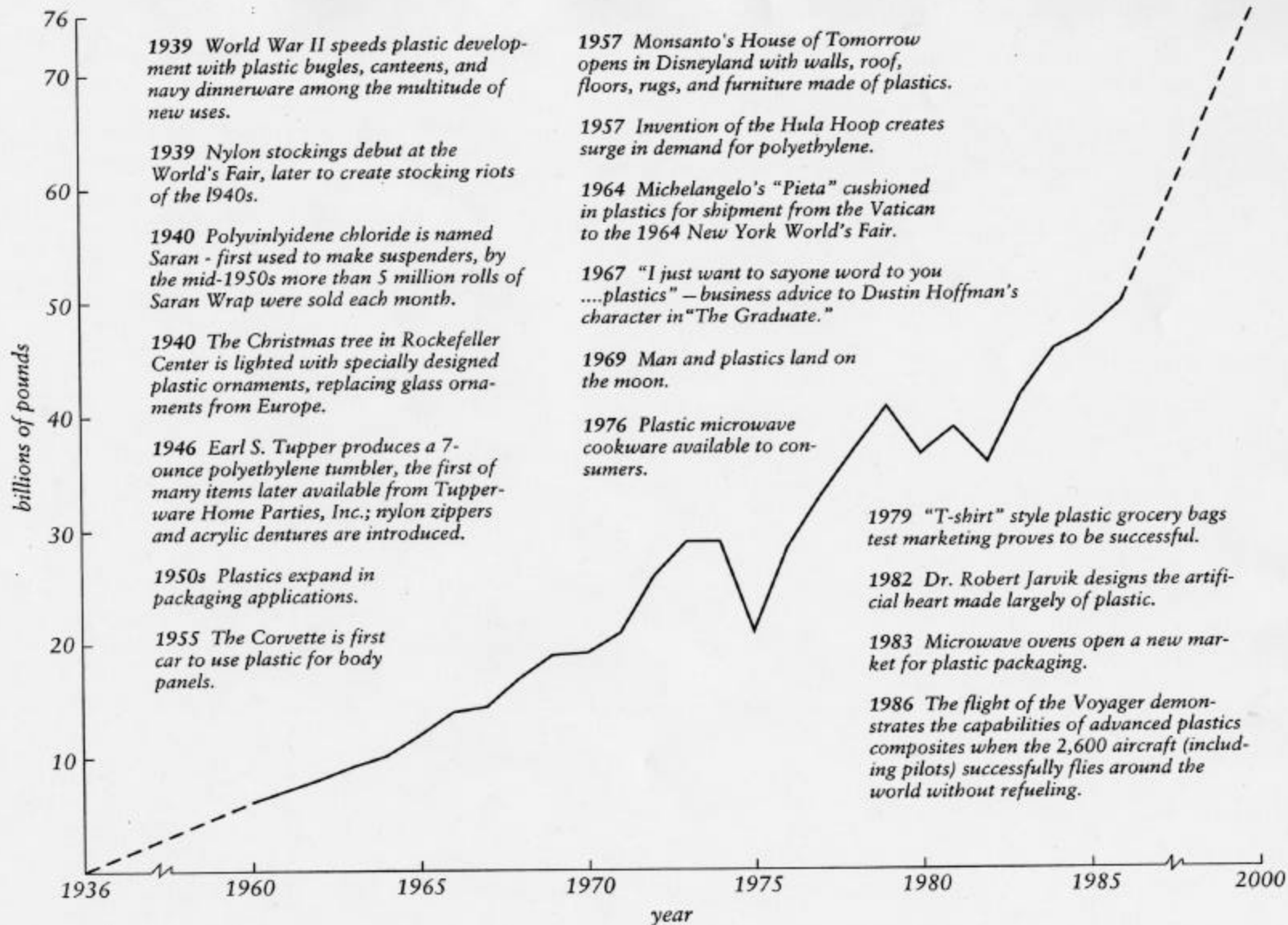
Ingested plastic particle appears to be near maximum possible size



Sorting the "Kaleidoscope"



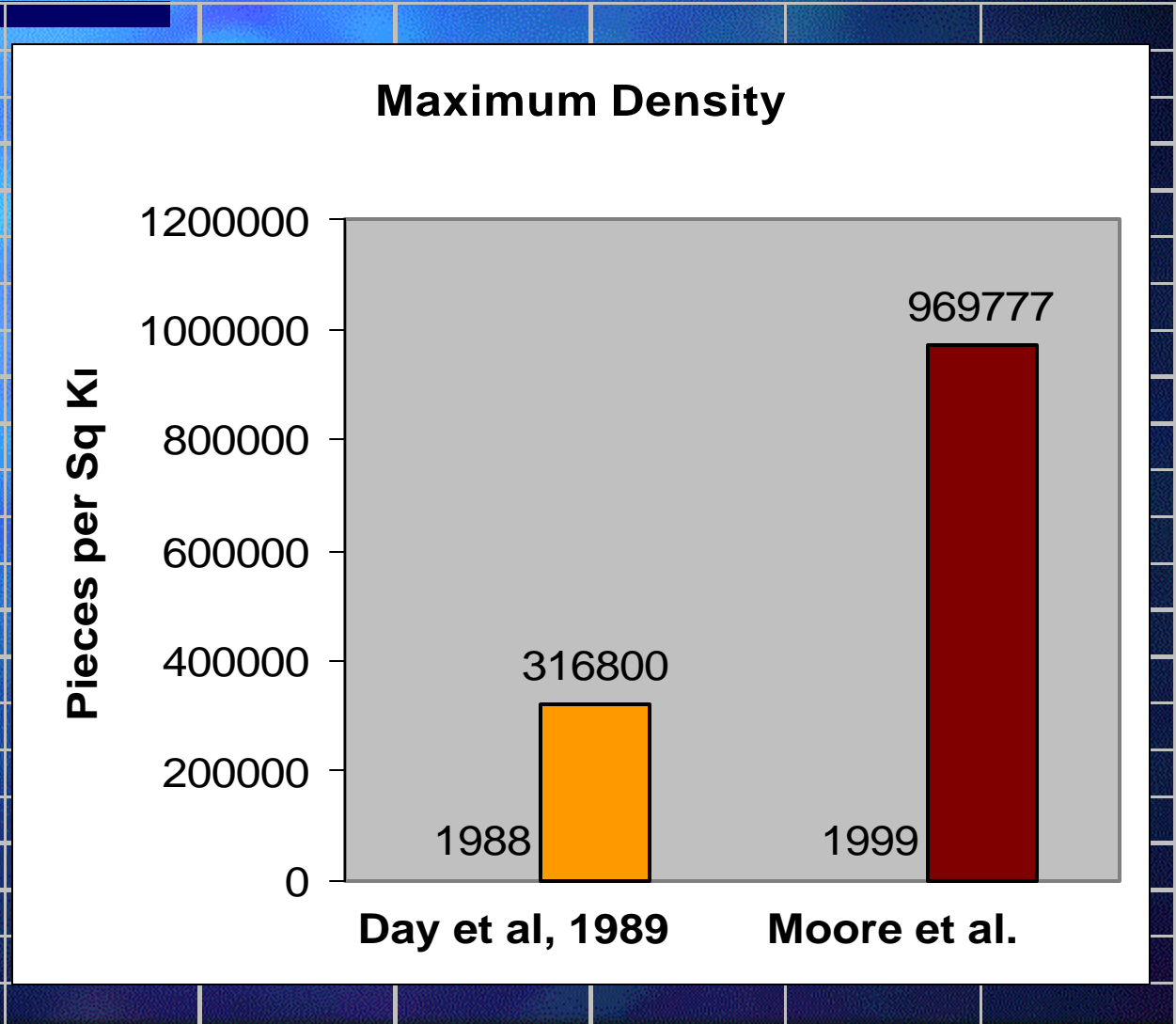
We sorted by standard colors



19.21 Growth of plastics production in the United States. (Source: Center for Environmental Education)

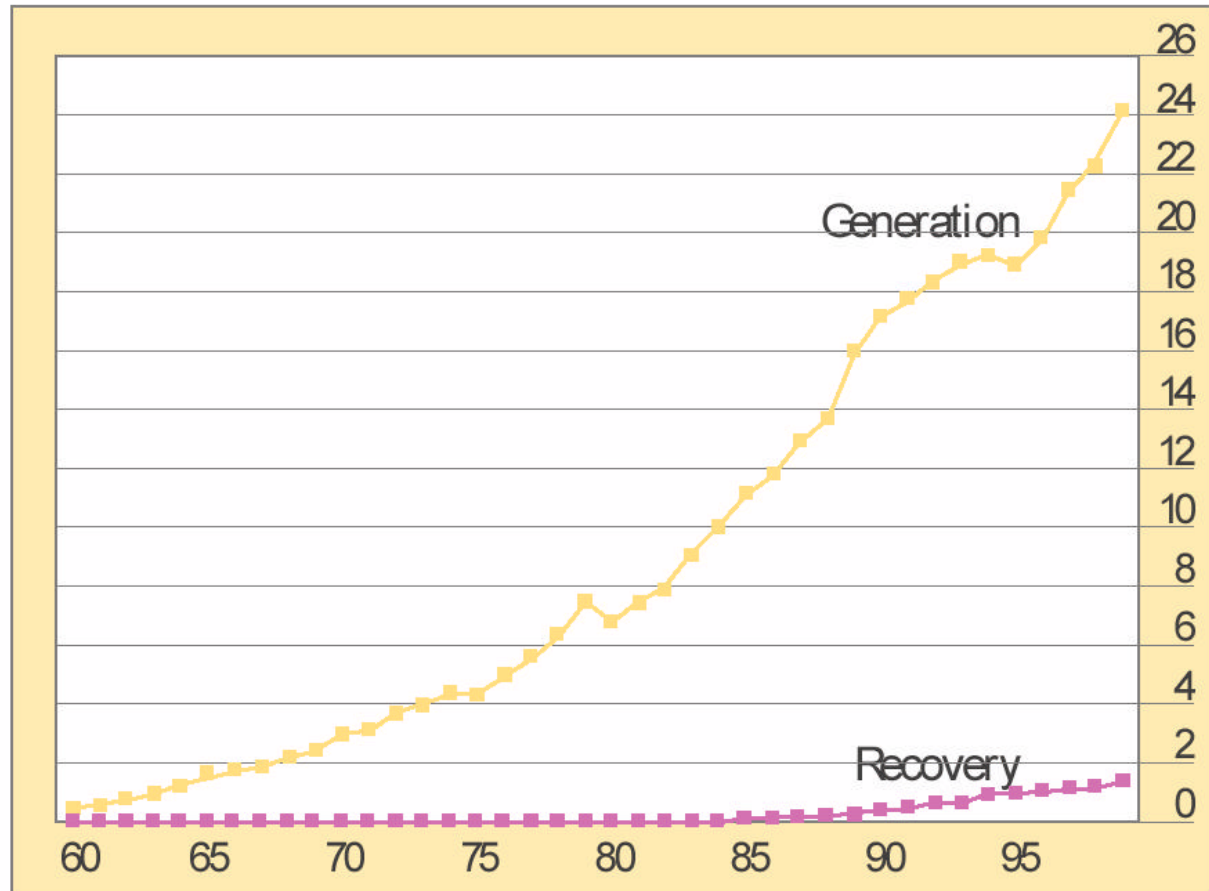
Maximum number of plastic particles tripled in last 10 years

1988	316800
1999	969777



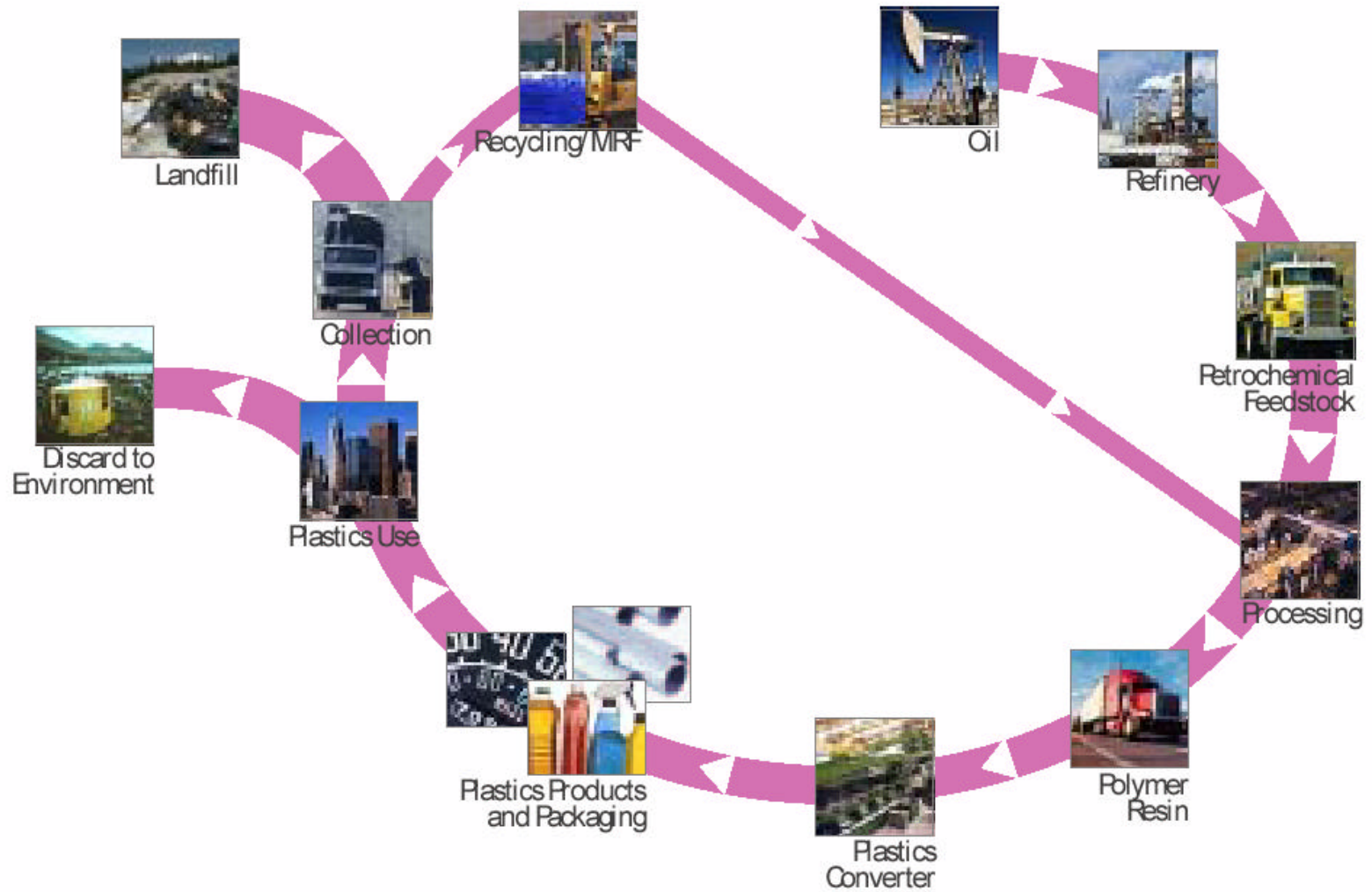
The Long-Term Gap Between U.S. Plastics Generation and Recovery is Widening

Million Tons per Year



Source: 8.

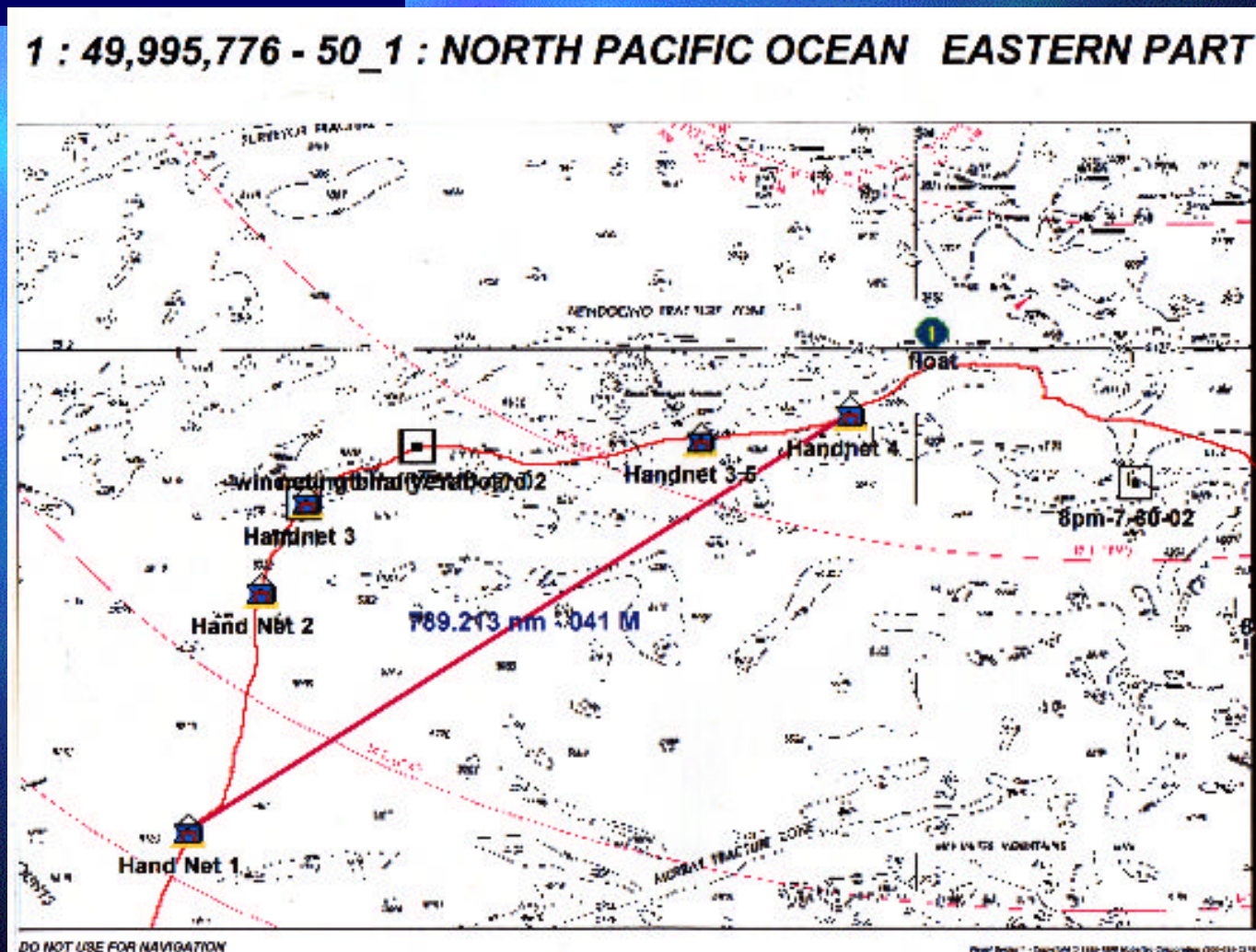
Current State Plastics Model



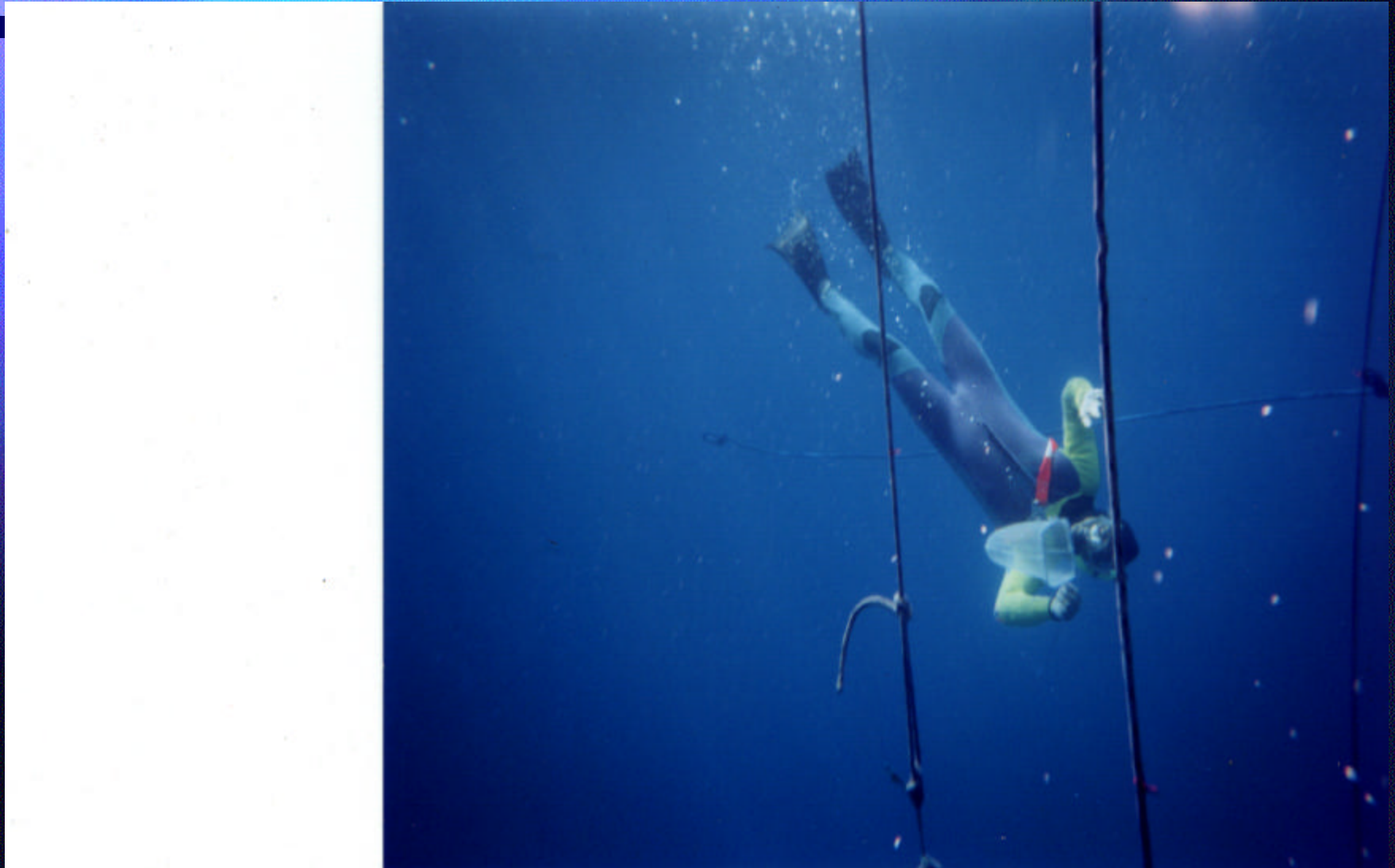
I take volunteers to sample the
"plastic soup" for themselves



These five sites cover nearly
1000 miles of the remote Pacific



We sampled for one "person hour", e.g. 15 min x 4



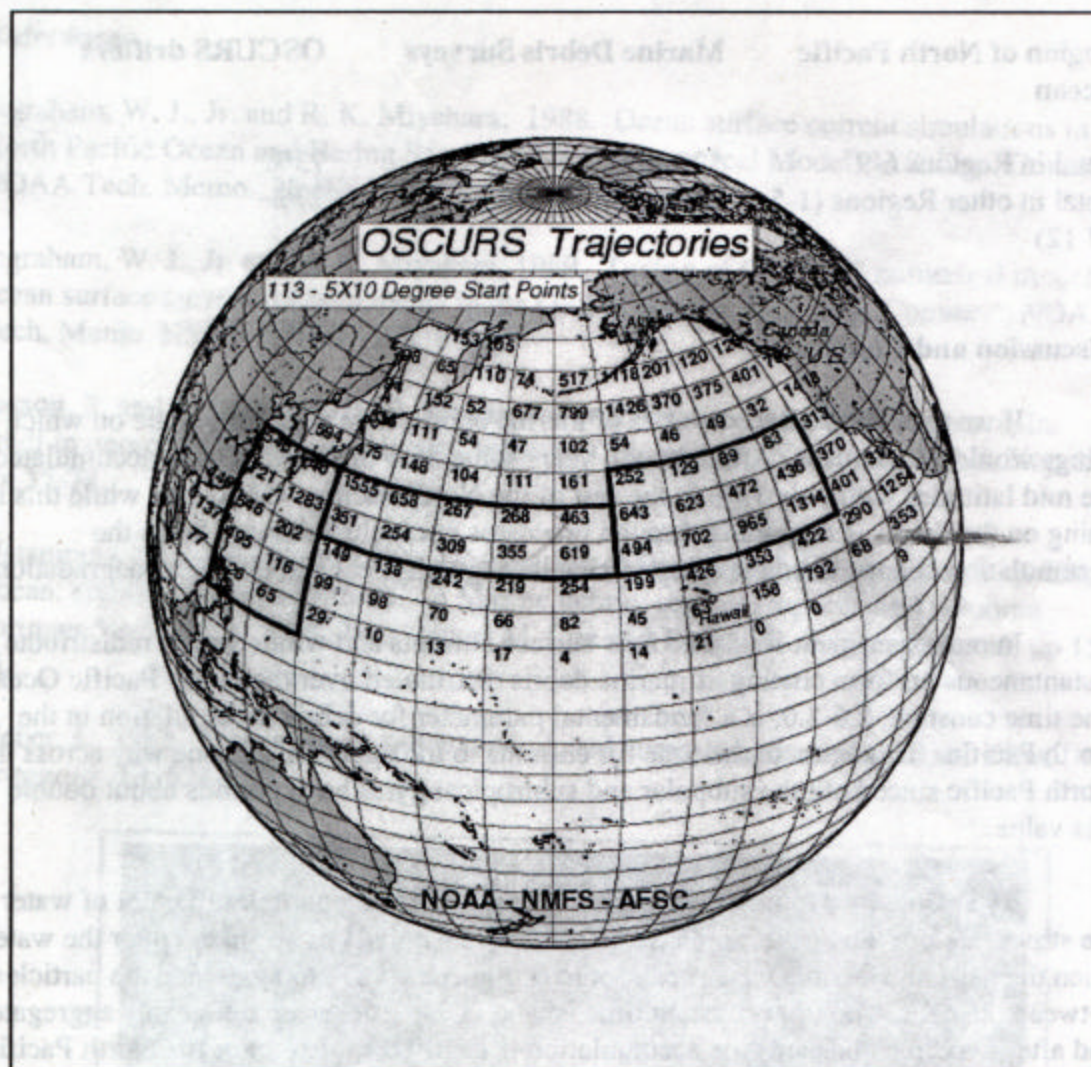
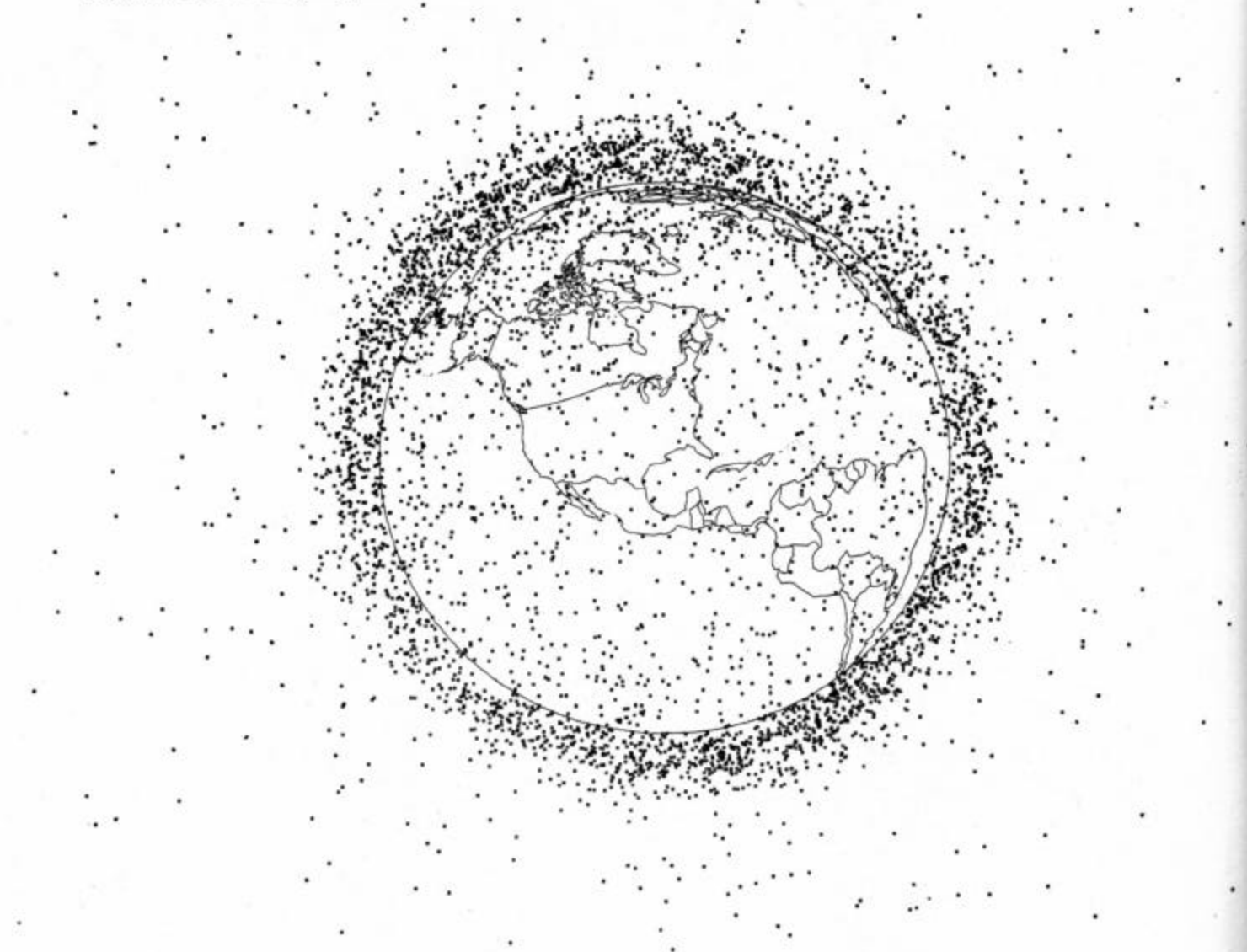


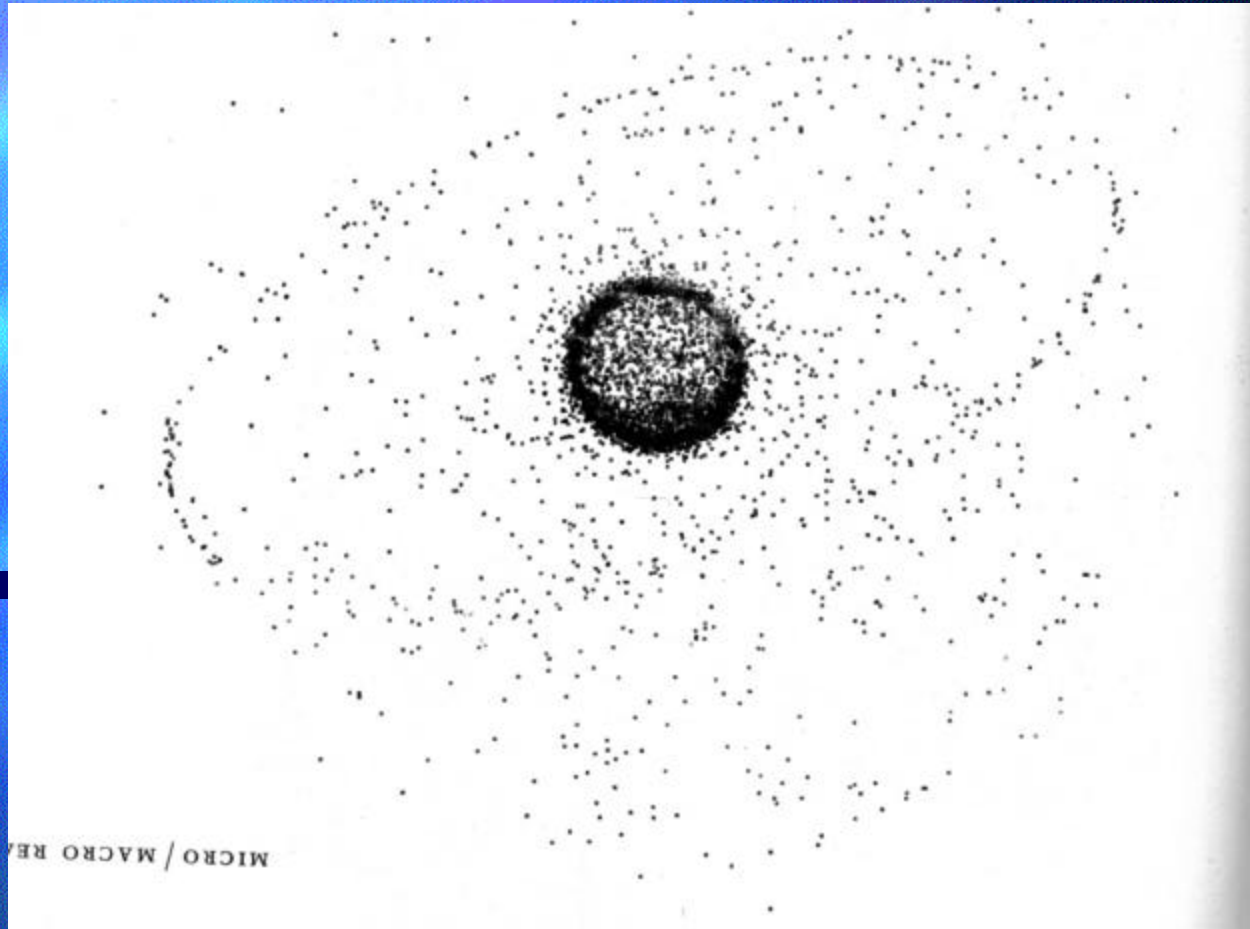
Fig. 5. Accumulation regions superposed on the number of sightings of total marine debris documented by standardized methods in 5° latitude by 10° longitude squares reported by Matsumura and Nasu (1997)

The US tracked 7000 space debris items $> 10\text{cm}$ in 1978

accelerate the trashing of space.



Space debris doubles est. 5 yrs



If significant debris is not tracked,
it may be targeted as an enemy
missile by shield defenses